

Exercise 3 – Group Exercise

Given:

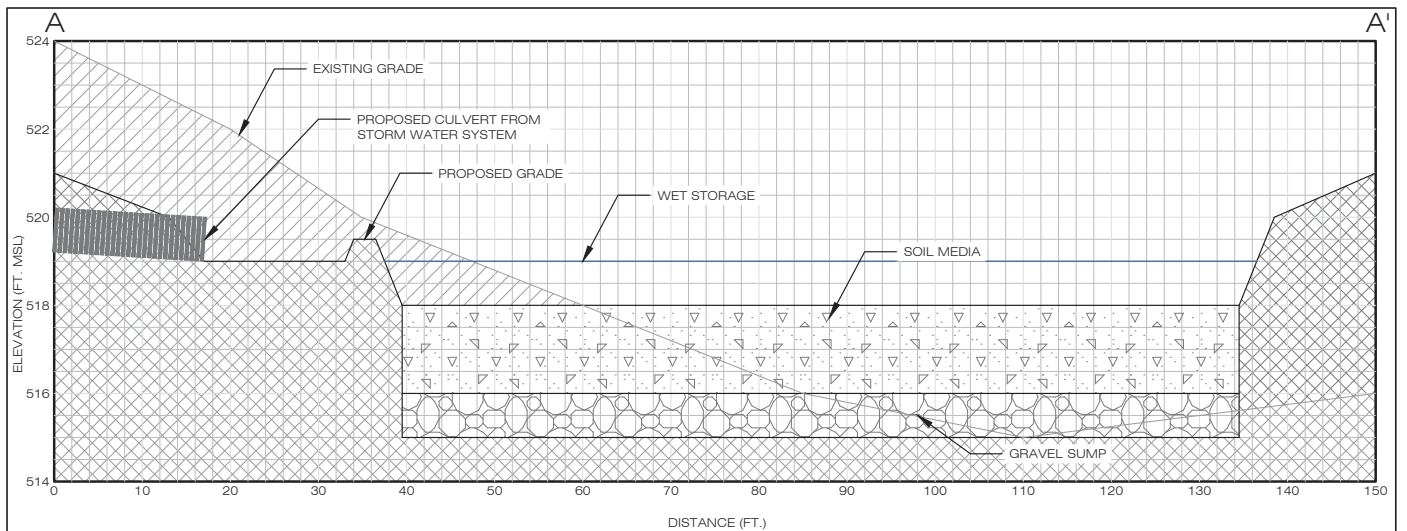
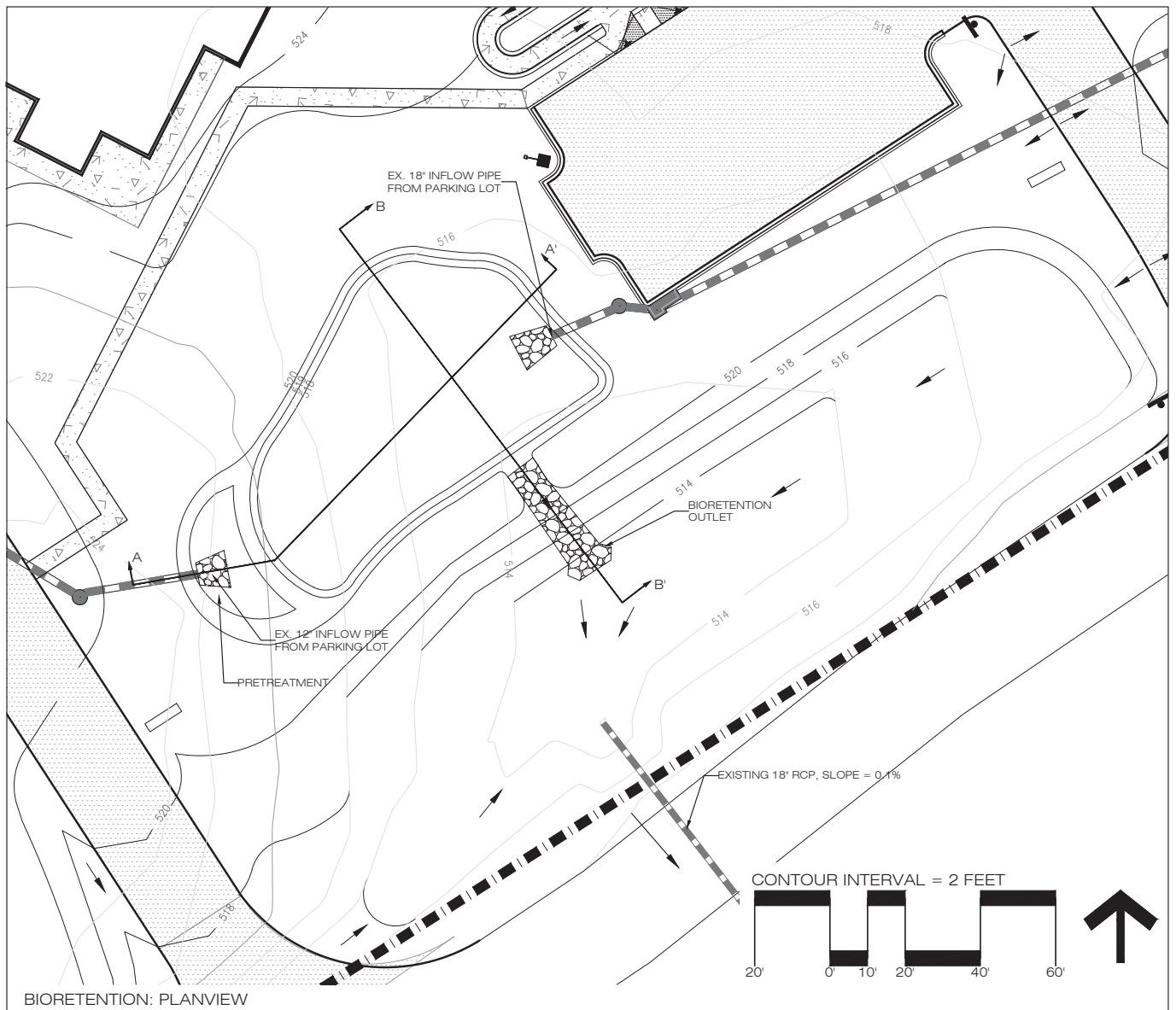
- Simplified Bioretention Level 1 Design Presented
- Site Data and DA to Bioretention as follows:

	Impervious	Managed Turf	Open Space	Total
Site Data	1.95	1.25	3.50	6.70
Drainage Area Data (to BioL1)	1.9	1.10	1.67	4.67

Quick Review:

- Sizing and layout
- Consistency with Clearinghouse Specification (#9)
- Other general issues observed

Helpful Hint: *Use your time to try to identify those things that are important facets of a stormwater practice design*



PROPOSED DRAINAGE AREA CHARACTERISTICS:
 AREA = 4.67 ACRES
 IMPERVIOUS ACREAGE = 1.90 ACRES
 OPEN SPACE/ FOREST ACREAGE = 1.67 ACRES
 MANAGED TURF ACREAGE = 1.10 ACRES

CURVE NUMBER: 83
 TIME OF CONCENTRATION: 5 MINUTES

SITE CONDITIONS:
 AREA = 6.7 ACRES
 IMPERVIOUS ACREAGE = 1.95 ACRES
 OPEN SPACE/ FOREST ACREAGE = 3.5 ACRES
 MANAGED TURF ACREAGE = 1.25 ACRES

PHOSPHOROUS REDUCTION CALCULATIONS:
 POST DEVELOPMENT PHOSPHOROUS LOAD
 = 5.17 LB/YR
 TOTAL LOAD REDUCTION REQUIRED
 = 2.42 LB/YR
 RUNOFF REDUCTION BY PRACTICE
 = 2,972 C.F.
 TOTAL LOAD REDUCTION BY PRACTICE
 = 2.56 LB/YR



SPILLWAY CALCULATIONS:
 $Q_2 = 5.8 \text{ CFS}$, $Q_{10} = 12.2 \text{ CFS}$

SLOPE = 33%
 DIMENSIONS: BOTTOM WIDTH = 8 FT
 SIDE SLOPES = 2:1

SHEAR STRESS = $R_h \times \text{SLOPE} \times S_w \text{ WATER}$
 $= 0.28 \times 0.33 \times 62.4 = 5.77 \text{ LB/SF}$

CLASS II RIPRAP FOR CHANNEL LINING

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[illegible]